Omnitron Systems Technology, Inc.

***iConverter*® 100Fx/Tx User Manual**

***iConverter* 100Fx/Tx** Dual Fiber Modules					
Fiber Type	**Distance**	**Connector Types**			
		ST	**SC**	**MT-RJ**	**LC**
MM	5 km	8360-0	8362-0	8364-0	-
SM	30 km	8361-1	8363-1	8365-1	8367-1
SM	60 km	8361-2	8363-2	-	8367-2
SM	120 km	-	8363-3	-	8367-3

***iConverter* 100Fx/Tx SF** Single-Fiber Modules			
Fiber / Connector Type	**Distance**	**Tx: 1310 nm, Rx: 1550 nm**	**Tx: 1550 nm, Rx: 1310 nm**
SM / SC	20 km	8370-1	8371-1
SM / SC	40 km	8370-2	8371-2

For wide temperature (-40 to 60º C), add a "W" to the end of the model number. Consult factory for extended temperature (-40 to +75º C) models. When using single-fiber (SF) media converter models, the Tx wavelength on one end has to match the Rx wavelength on the other.

OVERVIEW:

The *iConverter* 100Fx/Tx converters support the IEEE 802.3 Ethernet standard and converts 100BASE-FX fiber to 100BASE-TX unshielded twisted pair (UTP). Models are available for multimode (MM) and single-mode (SM) dual fiber and single-mode single-fiber.

The 100Fx/Tx supports UTP Half-Duplex and Full-Duplex auto-negotiation with manual override and features a crossover UTP switch for easy attachment to hubs, switches and workstations.

The 100Fx/Tx can be used in an unmanaged or managed fashion. When unmanaged, it can be installed in a chassis without an *iConverter* Network Management Module (NMM) or *iConverter* 10/100M2. To be managed, an NMM module or 10/100M2 module must be installed in the same chassis.

LINK MODES:

In order to accommodate different user needs, the 100Fx/Tx supports three different linking modes.

The Link Segment (LS) mode transmits a link signal independently of any received link at any port. Utilizing this configuration, a loss of a receive link signal will only affect the port detecting the loss of signal. All the other ports will continue to generate a link signal. For example a loss of link on the fiber port only affects the fiber port; the other ports remain unaffected [Fig 1(b)].

The Link Propagate (LP) mode transmits a link signal only when a link signal is detected. Utilizing this configuration, a loss of a receive link signal will continue to propagate through to the next port in the network. For

example, the fault at the fiber port is propagated forward causing the switch port to drop its link due to the propagated fault [Fig 1(c)].

The Remote Fault Detection (RFD) mode transmits a link signal only when a link signal is detected. When a loss of link is detected, this mode will perform both a loop back and propagate forward. For example, the fiber fault is looped back in the opposite direction causing the port on the other media converter to lose fiber link. It also propagates the fault forward toward the UTP port causing the switch port to lose link [Fig 1(d)].

Note: Connecting two converters set to RFD is an illegal setting and will cause a "deadly embrace" lockup.

Symmetrical Fault Detection is only supported on modules with the revision of xx/08.

In Symmetrical Fault Detection (SFD), the UTP port transmits a Link signal only when receiving a Link at the fiber port. The fiber port transmits a Link signal only when receiving a Link signal at both the fiber port and the UTP port. As a result, fiber faults (no Link received at the fiber) are looped back and can be reported to the network core. In addition, connecting two back-to-back converters which are both set to SFD facilitates dual-loop-back, where fiber faults are reported to both ends of the network link. A blinking fiber link LED on a converter indicates a fault of the transmit fiber or UTP cables of that converter [Fig. 1(e)].

Note: Converters in SFD mode must be deployed in pairs.

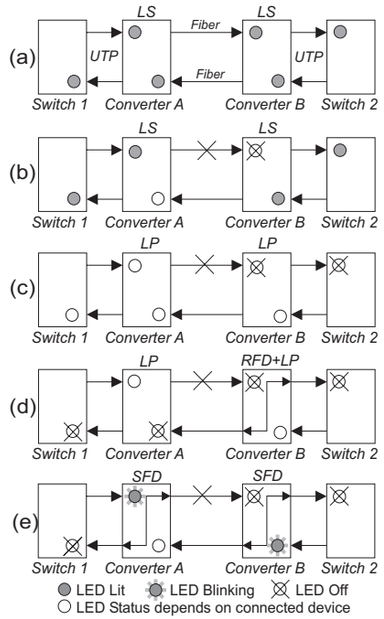

Fig. 1 Link Modes

FRONT PANEL DIP-SWITCH SETTINGS:

Link Segment = Link Seg
Normal = Norm
UTP Auto Negotiate = AN
UTP Full-Duplex = FDX
Link Prop = Link Propagate
R/Flt Det = Remote Fault Detect
Man = UTP Manual Negotiate
HDX = UTP Half-Duplex

Fig. 2 Front Panel DIP-Switches

SW1	SW2	Link Mode
LS	Normal	Link Segment (LS)
LP	Normal	Link Propagate (LP)
LS	RFD	Remote Fault Detection + LP (RFD+LP)
LP	RFD	Illegal Setting

Fig. 3 Link Mode Selection Table

SW1	SW2	Link Mode
LS	Normal	Link Segment (LS)
LP	Normal	Link Propagate (LP)
LS	RFD	Remote Fault Detection + LP (RFD+LP)
LP	RFD	Symmetrical Fault Detection (SFD)

Fig 4 Link Mode Selection Table for Revision xx/08

UTP Auto/Manual Negotiate "AN/Man" DIP-Switch:

When this DIP-Switch is in the UTP Auto-Negotiate "AN" position (factory setting), the converter auto- negotiates

and matches the duplex mode of a mating auto-negotiating device connected to its UTP port.

When in the UTP Manual Negotiate "Man" position, the converter does not auto-negotiate and operates in the duplex mode selected by the UTP Full/Half-Duplex "FDX/HDX" DIP-Switch.

UTP Full/Half Duplex "FDX/HDX" DIP-Switch:

When the UTP Auto/Manual Negotiate "AN/Man" DIP-Switch is in the Manual "Man" position, the UTP Full/Half-Duplex "FDX/HDX" DIP-Switch determines the duplex mode for the converter.

When the UTP Full/Half-Duplex DIP-Switch is in the UTP Full-Duplex "FDX" position (factory setting), the converter operates in Full-Duplex mode. When in the UTP Half-Duplex "HDX" position, it operates in Half-Duplex mode. Set the duplex mode to match the connecting device and check for link status.

Note: Attaching an auto-negotiating UTP port to a non-auto-negotiating (manual / forced / hard-coded) UTP port may result in an unpredictable port setting with excessive collisions and poor link performance. When operating in Manual mode both mating ports MUST be set manually to the same speed and duplex mode.

RJ45 Crossover "= / X" Switch (Not Shown):

When connecting the UTP to a hub or switch, set this front-plane switch to Straight-Through "=" (factory setting). When connecting to a workstation, set it to Crossover "X".

LED INDICATORS:

LED	Color	Description
Pwr:	Yellow	On - Power on
F/O Lk:	Green	On - Link; Blink - Activity
AN: enabled	Green	On - UTP Auto-Negotiation
FDx:	Green	On - Full-Duplex mode
UTP/Lk:	Green	On - UTP Link; Blink - Activity

MOUNTING AND CABLE ATTACHMENT:

The *iConverter* modules are hot-swappable and can be installed into any *iConverter* chassis.

1. Using the chassis module guides for alignment, insert the module into the selected slot and secure using the front panel fastener screw.
   Note: Ensure that the module is firmly seated against the backplane.
2. Using a Category 5 cable, attach the UTP port to a 100BASE-TX Ethernet device.
3. Using a multimode or single-mode dual-fiber cable as required per the converter type, attach the fiber port to a 100BASE-FX mating Ethernet device. The transmit (Tx) must attach to the receive side of the mating device and the receive (Rx) must attach to the transmit side.
4. Single-fiber (SF) converters must be used in matched pairs. The transmit (Tx) and receive (Rx) wavelengths of one converter must match the receive (Rx) and transmit (Tx) wavelengths of the mating converter. For example, an 8370-1 must be connected to an 8371-1.

100Fx/Tx SPECIFICATIONS:

Model Type	100Fx/Tx
Protocols	100BASE-FX, 100BASE-TX
Copper Connectors	RJ-45
Fiber Connectors	SC, ST, LC, MT-RJ, SFD Single-Fiber SC
Controls	UTP X-over, LS/LP, RFD, UTP FDX/HDX, UTP A/N
LED Displays	Power, FO link, UTP link, Auto, FDX/HDX
Dimensions	W:0.85" x D:4.5" x H:2.8"
Weight	8 oz.
Compliance	UL, CE, FCC Class A, NEBS Level 3
Power Requirement	0.7A @ 3.3VDC (typical)
Temperature	Standard: 0 to 50º C Wide: -40 to 60º C Storage: -40 to 80º C
Humidity	5 to 95% (non-condensing)
Altitude	-100m to 4000m
MTBF (hrs)	730,000

Warning

The operating description in this Instruction Manual is for use by qualified personnel only. To avoid electrical shock, do not perform any servicing of this unit other than that contained in the operating instructions, unless you are qualified and certified to do so by Omnitron Systems Technology, Inc.

Warranty

This product is warranted to the original purchaser against defects in material and workmanship for a period of TWO YEARS from the date of shipment. A LIFETIME warranty may be obtained by the original purchaser by REGISTERING this product with Omnitron within 90 days from the date of shipment. TO REGISTER, COMPLETE AND MAIL OR FAX THE ENCLOSED REGISTRATION FORM TO THE INDICATED ADDRESS. Or you may register your product on the Internet at www.omnitron-systems.com. During the warranty period, Omnitron will, at its option, repair or replace a product which is proven to be defective.

For warranty service, the product must be sent to an Omnitron designated facility, at Buyer's expense. Omnitron will pay the shipping charge to return the product to Buyer's designated US address using Omnitron's standard shipping method.

Limitation of Warranty

The foregoing warranty shall not apply to defects resulting from improper or inadequate use and/or maintenance of the equipment by Buyer, Buyer-supplied

equipment, Buyer-supplied interfacing, unauthorized modifications or tampering with equipment (including removal of equipment cover by personnel not specifically authorized and certified by Omnitron), or misuse, or operating outside the environmental specification of the product (including but not limited to voltage, ambient temperature, radiation, unusual dust, etc.), or improper site preparation or maintenance.

No other warranty is expressed or implied. Omnitron specifically disclaims the implied warranties of merchantability and fitness for any particular purpose.

Exclusive Remedies

The remedies provided herein are the Buyer's sole and exclusive remedies. Omnitron shall not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any legal theory.

Technical Support:

For help with this product, contact our Technical Support:

Phone: (949) 250-6510

Fax: (949) 250-6514

Address: Omnitron Systems Technology, Inc.
140 Technology Dr., #500
Irvine, CA 92618 USA

Email: support@omnitron-systems.com
URL: www.omnitron-systems.com

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